We claim:

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- 1. A method for performing pulse volume measurement on a patient, the method comprising:
- (a) taking a plethysmographic signal from the patient, the plethysmographic signal comprising a plurality of plethysmographic waveforms;
 - (b) performing an autocorrelation on the plethysmographic signal to determine locations of the individual plethysmographic waveforms;
 - (c) isolating one of the plethysmographic waveforms in accordance with the autocorrelation;
 - (d) convolving the isolated plethysmographic waveform with the plethysmographic signal to align the isolated plethysmographic waveform with the plethysmographic signal;
 - (e) performing signal averaging between the isolated plethysmographic waveform and the plethysmographic signal as aligned in step (d) to provide an averaged signal; and
 - (f) performing the pulse volume measurement in accordance with the averaged signal.
 - 2. The method of claim 1, wherein step (c) comprises determining whether the isolated plethysmographic waveform has an amplitude which remains in a predetermined range.
 - 3. The method of claim 2, wherein step (d) comprises determining a time window in which the plethysmographic signal is tested to determine whether the plethysmographic signal has an amplitude which remains in the predetermined range during the time window.
 - 4. The method of claim 3, wherein steps (d) and (e) are performed for a plurality of plethysmographic waveforms in the plethysmographic signal.
 - 5. The method of claim 4, wherein step (c) is performed for a plurality of plethysmographic waveforms in the plethysmographic signal to provide a plurality of isolated

plethysmographic waveforms, and wherein steps (d) and (e) are performed for the plurality of isolated plethysmographic waveforms.

- 6. A method for averaging a signal which comprises a plurality of individual waveforms in sequence, the method comprising:
- (a) performing an autocorrelation on the signal to determine locations of the individual waveforms in the signal;
 - (b) isolating one of the waveforms in accordance with the autocorrelation;
 - (c) time-shifting the isolated waveform to align the isolated waveform with another waveform in the signal; and
 - (d) averaging the isolated waveform and the other waveform.
 - 7. The method of claim 6, wherein step (c) comprises performing a convolution of the isolated waveform with the signal to determine an optimal alignment between the isolated waveform and the other waveform.
 - 8. The method of claim 7, wherein step (c) further comprises using the convolution to determine a time window containing the other waveform and determining whether, during the time window, an amplitude of the other waveform remains within a predetermined range.
 - 9. The method of claim 8, wherein steps (c) and (d) are performed a plurality of times for a plurality of other waveforms in the signal.
- 10. The method of claim 9, wherein step (b) is performed a plurality of times to provide a plurality of isolated waveforms, and wherein steps (c) and (d) are performed for each of the isolated waveforms.

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- 11. The method of claim 6, wherein step (b) comprises testing the isolated waveform to determine whether the isolated waveform has an amplitude which remains in a predetermined range.
 - 12. The method of claim 6, wherein the signal is a plethysmographic signal.
- 5 13. The method of claim 12, wherein the signal is taken in a circumstance in which a separate ECG signal is not available.
 - 14. The method of claim 6, wherein the signal is periodic.
 - 15. The method of claim 6, wherein the signal is approximately periodic.
- 16. A system for averaging a signal which comprises a plurality of individual waveformsin sequence, the system comprising:

an input for receiving the signal; and

circuitry, in communication with the input, for:

- (a) performing an autocorrelation on the signal to determine locations of the individual waveforms in the signal;
 - (b) isolating one of the waveforms in accordance with the autocorrelation;
- (c) time-shifting the isolated waveform to align the isolated waveform with another waveform in the signal; and
 - (d) averaging the isolated waveform and the other waveform.
- 17. The system of claim 16, wherein the circuitry performs step (c) by performing a convolution of the isolated waveform with the signal to determine an optimal alignment between the isolated waveform and the other waveform.
 - 18. The system of claim 17, wherein the circuitry performs step (c) further by using the convolution to determine a time window containing the other waveform and determining

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whether, during the time window, an amplitude of the other waveform remains within a predetermined range.

- 19. The system of claim 18, wherein the circuitry performs steps (c) and (d) a plurality of times for a plurality of other waveforms in the signal.
- 20. The system of claim 19, wherein the circuitry performs step (b) a plurality of times to provide a plurality of isolated waveforms, and wherein steps (c) and (d) are performed for each of the isolated waveforms.
- 21. The system of claim 16, wherein the circuitry performs step (b) by testing the isolated waveform to determine whether the isolated waveform has an amplitude which remains in a predetermined range.
 - 22. The system of claim 14, wherein the circuitry comprises a digital signal processor.

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